Research on The Philosophical Thinking of Knowledge Chain Model Based on Artificial Intelligence

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Abstract

After entering the era of knowledge economy, social development and economic construction are closely related to knowledge and information, which has become an important force to promote economic reform and innovation. In order to improve their core competitiveness, enterprises begin to cultivate a large number of excellent talents who master knowledge and obtain more corporate recognition, and knowledge management is gradually accepted by enterprises. As the realization of knowledge value and value-added innovation need to use the corresponding knowledge chain to complete, but the current academic community is lack of attention to the knowledge chain, practical research is not deep, so the future should be based on knowledge management and artificial intelligence technology theory to explore the corresponding knowledge force model. After understanding the research status of knowledge chain model based on artificial intelligence, this paper clarifies the technical methods of knowledge acquisition and knowledge representation, and constructs ontology method with knowledge chain as the core in combination with philosophical thinking, so as to improve the computer's understanding of language information and expand the application range of corresponding technology.

Keywords

Artificial intelligence; Knowledge chain; Knowledge acquisition; Knowledge representation; noumenon.

1. Step 1 Introduce

Knowledge is an important basis for the construction and development of modern society, and the research on knowledge chain is a new and challenging research field. At present, the relevant topics mainly focus on the conceptual model of knowledge chain, and the practical operation is not strong. Therefore, after understanding the basic theory of knowledge management and the development status of artificial intelligence technology, this paper will discuss the following aspects: The knowledge quantity model with artificial intelligence as the core is systematically discussed, and the relevant contents of knowledge acquisition and knowledge representation in knowledge chain are clarified. In the knowledge chain, the quality of knowledge acquisition directly determines whether the quantity of knowledge can run normally, and it is also important for knowledge organization. Especially in the operation of intelligent system, knowledge acquisition determines whether intelligent system can play its original role to a certain extent, because the biggest difference between intelligent system and non-intelligent system is that intelligent system focuses on the processing and application of knowledge. In the current knowledge society environment, the most important thing for enterprises is not fixed assets, nor working capital, but the knowledge they own and use, as well as the outstanding talents who have mastered more knowledge. Therefore, how to identify and use the knowledge inside and outside the organization is one of the important tasks facing the

development of enterprises during the implementation period, and it is also the focus of knowledge management. So far, no one has systematically studied the knowledge chain model from the perspective of artificial intelligence, but the research and development of knowledge chain cannot be separated from the support of artificial intelligence technology. Learning from previous research results, mastering more valuable data and combining with the basic ideas of knowledge management, it is very important to deeply explore the knowledge chain model with artificial intelligence as the core[1-5].

With the continuous development of social economy and network information technology, enterprise globalization and informatization have become an inevitable trend, the restrictions of each unit in the modern economy are becoming less and less, and the business cooperation between enterprises is becoming closer and closer. In order to better support the development of industry collaboration, digital systems between enterprises should be effectively integrated together to truly realize business collaboration with network system as the core. The specific structure is shown in Figure 1 below[6-10]:

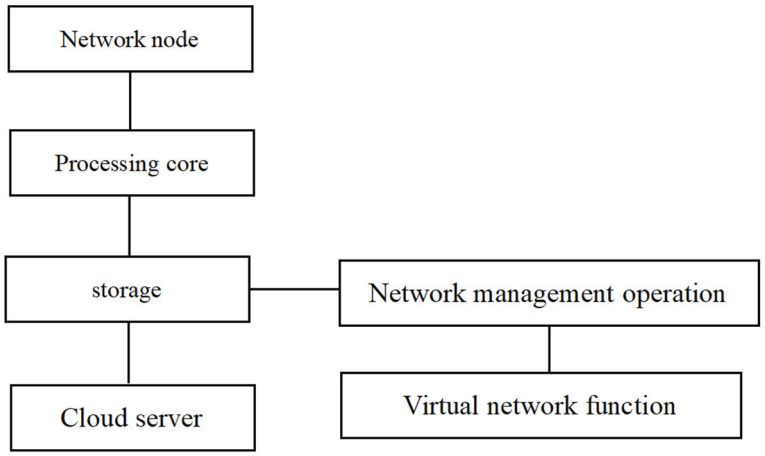

Figure 1. Business cooperation structure diagram based on network system

Through in-depth research on the integration methods and implementation conditions of heterogeneous digital systems, various problems existing in the interoperation of heterogeneous digital systems are effectively solved. In this paper, ontology is used to describe the data or information voice of the application system model, and ontology is regarded as the basis for the interoperation of domain models at different levels. Analyze and transform the relevant contents of enterprise models according to semantic analysis method, eliminate the differences between them, and realize effective interoperation. Ontology is a philosophical concept, which refers to the objective description of real existence in any area of the world. From a philosophical point of view, ontology is used to solve the problem of ambiguity in language. Ontology, as the theoretical basis for the study of entity existence and existence nature in western analytical philosophy, has been given a new definition in the field of artificial intelligence and knowledge engineering with the continuous development of artificial intelligence technology, the most representative of which is the clear specification of ontology belongs to the model. In the face of the continuous growth of Internet information data, how to organize, manage and maintain massive information and provide effective services for users is an important topic that scholars in various fields pay attention to in the new era. In order to better meet these requirements, ontology, as a conceptual model and modeling tool that can describe information systems at the semantic and knowledge levels, has been highly valued by many scholars at home and abroad, and has been widely used in many fields of computer. Since ontology has not been introduced into the field of artificial intelligence and information system

for a long time, the modeling method of ontology is preliminarily established, and there are still many problems in practical research, so the research on the construction method of domain ontology is crucial to the application of ontology[11-15].

2. Step 2: Method

2.1. Knowledge Chain

In essence, knowledge chain refers to the management of knowledge from the acquisition, transformation, storage, sharing and exchange of multiple links, while promoting knowledge innovation in the whole process to form a new knowledge content. In this process, the knowledge chain has the characteristics of repeating, and every time the cycle rises, new content is formed on the basis of existing knowledge. Knowledge representation is at the center of the knowledge chain, because in the process of knowledge chain operation, knowledge exists in a certain form, otherwise it cannot flow freely in the chain, and knowledge representation is the focus of research in the field of artificial intelligence. There are many forms of knowledge in enterprises, which are not limited to a few in artificial intelligence, so the research on knowledge chain should take knowledge representation as the core. Compared with other models, the design of the above model emphasizes the recycling of knowledge, and the overall design conforms to the basic concept of knowledge chain and belongs to the visualization form of knowledge chain.

2.2. Knowledge chain model based on artificial intelligence

Knowledge representation includes two forms: explicit knowledge and implicit knowledge. Knowledge management not only manages explicit knowledge, but also develops and manages implicit knowledge. Its basic function refers to the interaction between the two forms of knowledge to form four modes of knowledge transformation. From the perspective of organizations and individuals, the four modes of transformation shown in the above figure exist at the same time. Individuals can not only convert explicit knowledge from an organization into their own tacit knowledge, but also convert their tacit knowledge into the organization's tacit knowledge. During transformation, both organizations and individuals can be promoted, and knowledge management creates an environment that facilitates the effective transfer of this knowledge. According to the close connection between knowledge management and knowledge chain, the basic idea of knowledge management should be integrated into the research of corresponding knowledge, and artificial intelligence technology should be used reasonably to provide support for the construction of new knowledge chain. Figure 2 shows the knowledge acquisition process with artificial intelligence as the core:

The knowledge quantity model with artificial intelligence as the core proposed in this paper is divided into five parts. Artificial intelligence is mainly used in knowledge acquisition of knowledge chain. If it continues to rely on manual acquisition, it can no longer meet the needs of practical development, so automatic or semi-automatic methods should be used to obtain knowledge hidden in mass data information. The specific contents are as follows: First, knowledge source. It can be regarded as the source of the knowledge chain, which refers to the source of knowledge. The concept of this part is broad because of the wide form and scope of knowledge. Second, knowledge acquisition. It can be divided into two forms of manual acquisition and automatic or semi-automatic acquisition. From the perspective of practical application, both have their own advantages and disadvantages, and can be used at the same time. For example, the need to use computer software or work with people is more suitable for manual acquisition, and need to carry out a large number of repetitive mechanical operations, you can choose automatic or semi-automatic acquisition; Third, knowledge representation. No matter what kind of acquisition method is chosen, there are various forms of knowledge

acquisition, such as frames, magnetic logic, text or documents. Nowadays, due to the influence of software manufacturers and other factors, the format conversion between different files is difficult, so it is necessary to use a unified mode to present all kinds of knowledge, which can accelerate the pace of knowledge processing; Fourth, knowledge base. As the core of the knowledge chain model, all knowledge is uniformly stored in the database. After unified management, it is convenient for members of the knowledge organization to access and use, and supports real-time knowledge update. The knowledge base is closely related to the form of knowledge representation. The mature relational database can be used in practical application, whose purpose is to store and access various types of knowledge. Fifth, knowledge exchange and sharing. Qi is the main purpose of knowledge management, the reason is that knowledge, only fully shared application can play a unique role. The use of search engines to share all knowledge for members of the organization and obtain more content in the process of knowledge transformation can not only promote the communication between organizations or individuals, but also give full play to the due value of knowledge.

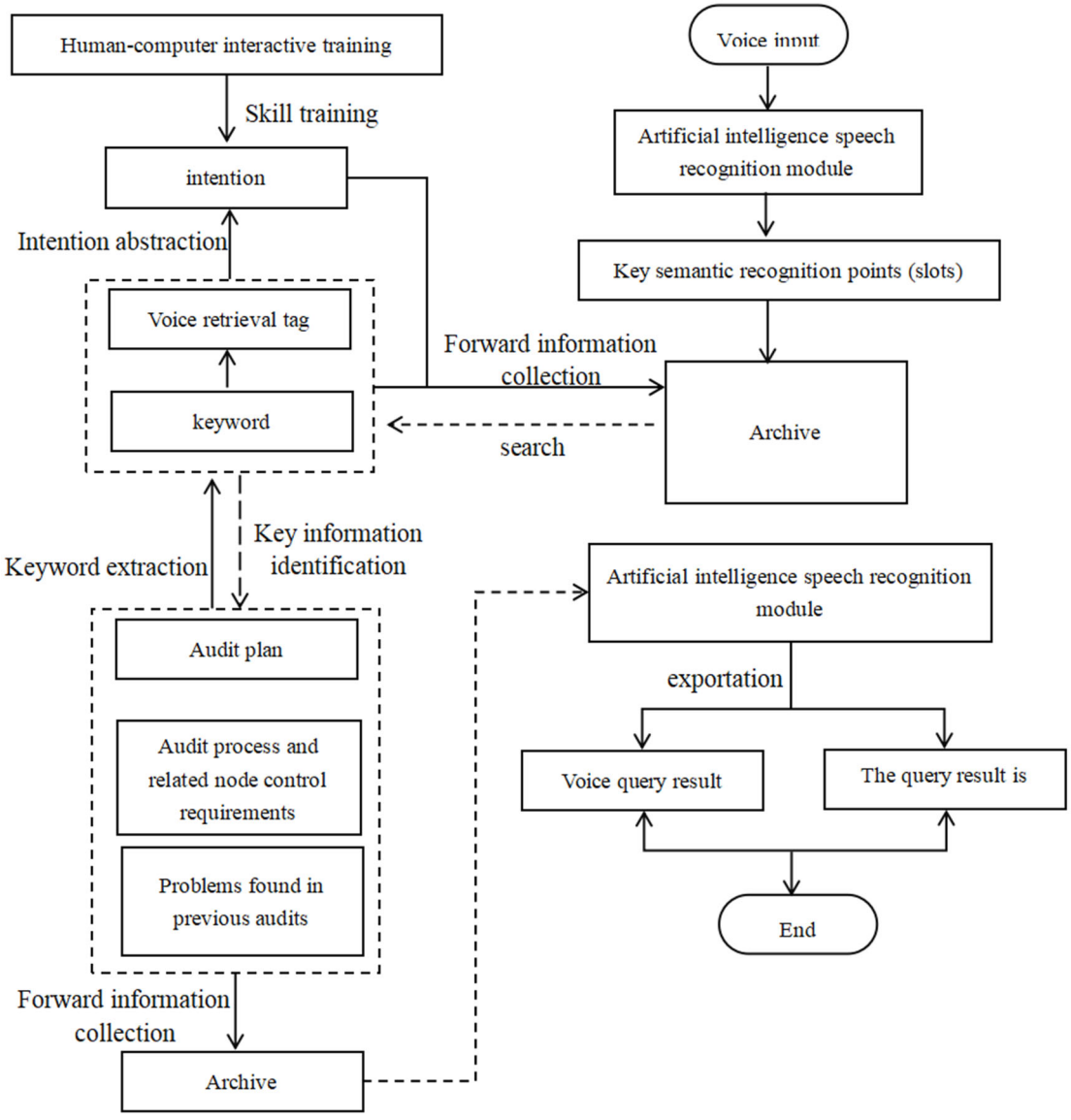

Figure 2. Flowchart of knowledge acquisition based on artificial intelligence

3. Result Analysis

Combined with the knowledge quantity model with artificial intelligence as the core, and according to the existing ontology construction methodology at home and abroad, the ontology method with knowledge chain as the core is proposed. Taking the "skeleton" method proposed by the University of Edinburgh as an example, the actual process is shown in Figure 3 below:

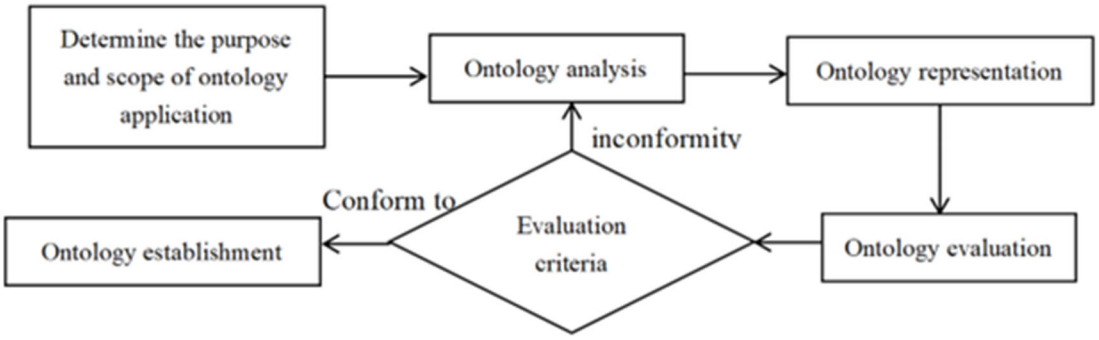

Figure 3. Flowchart of skeleton method

Taking the flow chart of evaluation method proposed by University of Toronto as an example, the actual flow chart is shown in Figure 4 below:

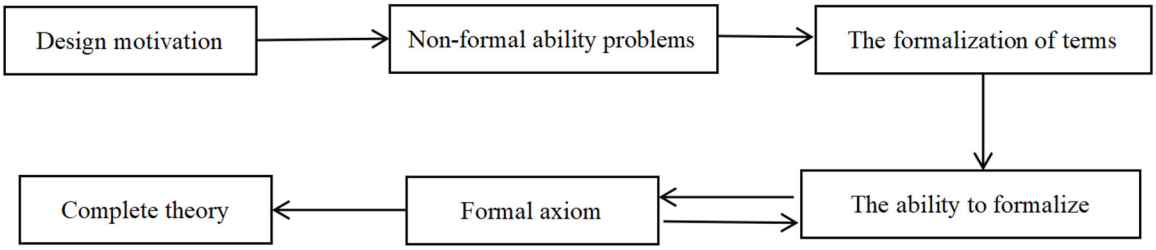

Figure 4. Flow chart of evaluation method

After mastering the existing ontology construction methods and ontology engineering, this paper studied and constructed the ontology frame diagram as shown in Figure 5 below:

From the perspective of practical application, ontology is a formal way to convert the defined ontology from the natural language format to the logical format that can be understood by the machine. In this process, after the formal representation language, that is, the ontology description language, represents the ontology, it can be directly stored and processed by the computer. Today, there are more than 20 ontology representation languages, such as description logic, resource description framework, and so on. In the process of ontology practice, in addition to using an ontology representation language to perform ontology, in order to improve the efficiency of development and application, some ontology editing tools can be applied to assist development. In this case study, OWL is used to describe ontology, that is, to formalize concepts and relationships with a defined ontology, with the purpose of ensuring that each category has its own characteristics. According to the existing research results, although the knowledge chain model based on artificial intelligence has achieved excellent results, ontology, as a conceptual model and modeling tool that can describe information systems at the semantic and knowledge levels, uses the defined knowledge chain model and term quantification technology to build an ontology construction method with knowledge chain as

the core. It can be effectively used in information acquisition and presentation in various fields. However, in-depth research is still needed in the future, such as how to maintain the similarity of ontologies in the construction of ontologies, how to use effective methods to detect whether ontologies are consistent, and which methods to use for ontology evolution and ontology maintenance after the initial construction of domain ontologies. These are of great scientific significance.

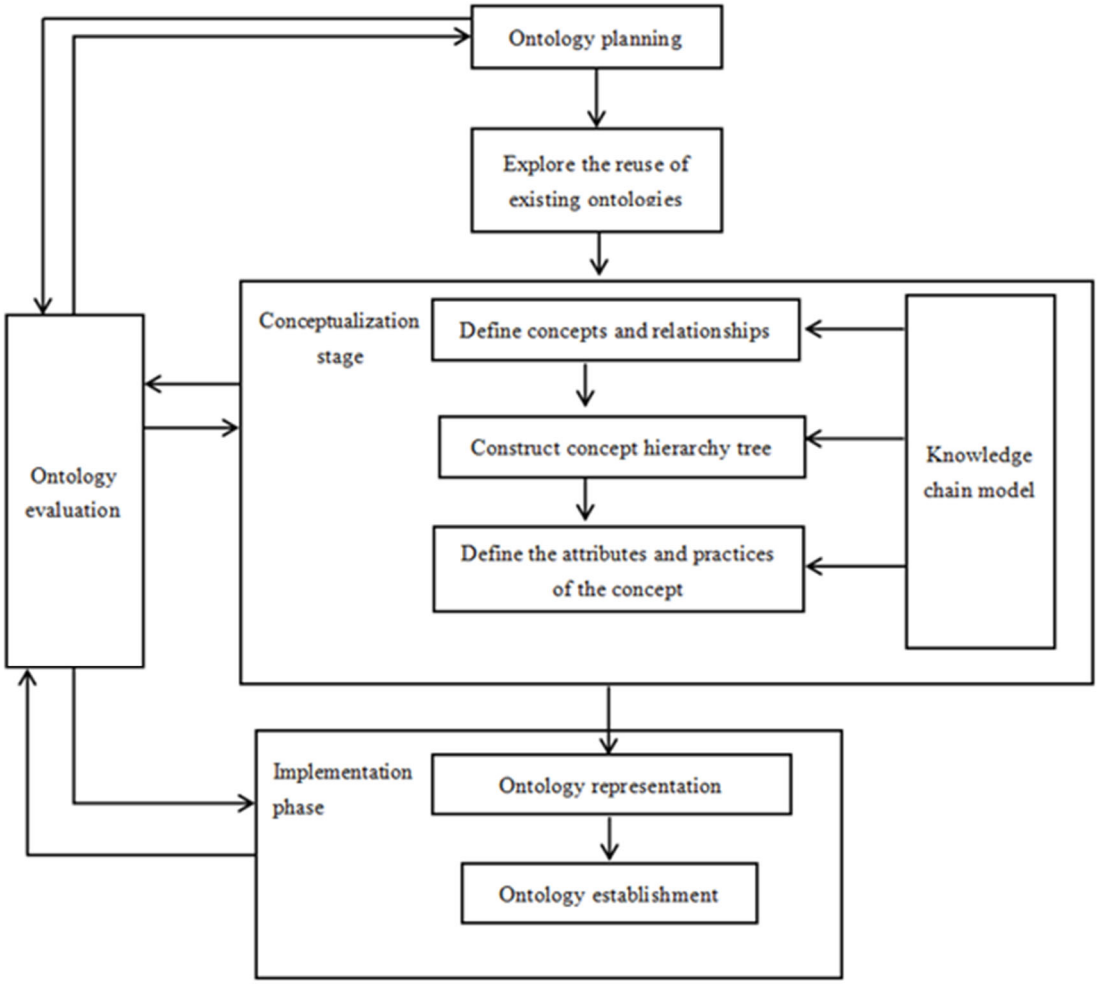

Figure 5. Ontology frame diagram

4. Conclusion

To sum up, as an important basis for realizing knowledge value, knowledge increment and knowledge innovation, knowledge chain can promote knowledge management reform and innovation in the new era. Therefore, the research on artificial intelligence and knowledge chain model not only has unique theoretical value, but also has important practical significance. This paper puts forward the concept of ontology construction from a philosophical point of view. After collecting and sorting out a large number of relevant literature materials, it constructs and analyzes the knowledge chain model with artificial intelligence as the core, and the practical research proves that it has unique advantages. In the future, it is necessary to continue to explore the development problems of knowledge acquisition in the knowledge chain.

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